

Cadenas de Markov en Tiempo Discreto

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1. $\{X_n, n = 0, 1, 2, \dots\}, S = \{0, 1, 2, \dots\}, \forall n \text{ y } x_j \in S, j = 0, 1, 2, \dots, n + 1 \rightarrow \text{CMTD: } P(X_{n+1} = x_{n+1} | X_n = x_n, \dots, X_0 = x_0) = P(X_{n+1} = x_{n+1} | X_n = x_n)$
2. Prob. Trans. un-paso: $p_{x_n x_{n+1}}(n) = P(X_{n+1} = x_{n+1} | X_n = x_n), x_n, x_{n+1} \in S \equiv p_{ij}(n) = P(X_{n+1} = j | X_n = i), i, j \in S$
3. CMTD homogénea: $p_{ij} = P(X_{n+1} = j | X_n = i) = P(X_{n+m+1} = j | X_{n+m} = i), m = -n, -(n-1), \dots, 0, 1, \dots$
4. Matriz Trans.: $P = (p_{i,j}), 0 \leq p_{ij} \leq 1, \sum_j p_{ij} = 1, P$ Matriz estocástica
5. Diagrama Transición
6. Distrib. Prob. Inicial: $\pi^0 = (\pi_0^0, \dots), \pi_i^0 = P(X_0 = i)$
7. CMTD: $p_{ij} \text{ y } \pi^0, P(X_0 = i_0, \dots, X_n = i_n) = p_{i_{n-1}i_n} p_{i_{n-2}i_{n-1}}, \dots, p_{i_0i_1} \pi_{i_0}^0$

References

- [1] Ríos-Insua, S., Mateos-Caballero, A., Bielza, C., Jimenez-Martín, A. (2004), Investigación Operativa. Modelos determinísticos y estocásticos Editorial Centro de Estudios Ramón Areces, S.A.